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a. said cartridge attachable to said blood pump and said cartridge supporting an attached blood passage, wherein the blood pump engages the blood passage when said cartridge is attached to the blood pump, wherein through said blood passage flows blood withdrawn from a patient, and

b. an electronic pressure sensor fixed to the cartridge, where the pressure sensor is arranged to sense a pressure in the blood flow through the blood passage of the cartridge and outputs an electrical signal indicative of the pressure and wherein the pressure sensor is structurally isolated from said blood pump.

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4. A cartridge as in claim 3 further comprising a filtered fluid passage extending from the filter, and a second pressure sensor in the filtered fluid passages sensing a pressure of filtered fluid flowing through the filtered fluid passage, wherein said second pressure sensor is mounted on the cartridge and structurally isolated from the blood pump.

6. A cartridge as in claim 1 where the sensor is integrated into the housing of a hemofilter and the hemofilter is mounted on the cartridge.

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7. A cartridge as in claim 1, where the pressure sensor and a pump coupling loop of the blood passage are mounted on the cartridge housing and the cartridge detachably attaches to the pump device such that the pump device engages the loop.

8. A cartridge as in claim 7 where the blood passage is formed of transparent material so that the blood flow is visible.

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13. A cartridge as claim 1 wherein the pressure sensor is sealed in a pressure sensor housing formed of a biocompatible and flexible material, and the sensor housing

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A1 includes an integral and flexible membrane in contact with the blood and electronic sensors.

diaphragm to said electrical signal.

16. A disposable extracorporeal blood circuit for processing blood from a mammal comprising:

a blood passage having a blood withdrawal port connectable to a withdrawal peripheral blood vessel of the mammal, a blood return port connectable to a return peripheral blood vessel of the patient, and a blood passage between the withdrawal port and the return port through which blood flows wherein the blood passage has a smooth and continuous wall throughout the passage;

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A5 a pressure sensor having a fluid passage with a fluid inlet or outlet coupled to said blood passage, and a fluid pressure responsive element flush with a wall of the fluid passage,

A5 a blood filter having a blood inlet and a blood outlet both coupled to said blood passage such that the blood flows through said filter, and

a cartridge to which is attached the blood passage, pressure sensor and blood filter, and said housing is detachably mountable to a blood pump, and wherein said cartridge includes an electrical connection for electrically coupling the pressure sensor to the blood pump.

17. A disposable extracorporeal blood circuit as in claim 16 wherein said blood passage includes a tubular withdrawal line connectable to a first catheter inserted into the first peripheral blood vessel and to said pressure sensor, a tubular blood circuit line

connecting the pressure sensor and the blood inlet of the filter, and a tubular return line
AS connected to the blood outlet of the filter and connectable to a catheter inserted in said
Sub B1 second peripheral blood vessel.

18. A disposable extracorporeal blood circuit as in claim 17 wherein the tubular
blood circuit line is connectable to a roller blood pump of the blood pump.

19. A disposable extracorporeal blood circuit as in claim 16 wherein the
withdrawal and return peripheral blood vessels are the same blood vessel.

Please add the following new claims 20 and 21.

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--20. (New) A cartridge as in claim 4 further comprising a third pressure sensor
arranged to sense a blood pressure in the return blood passage.--

--21. (New) A cartridge as in claim 14 further comprising electrical signal
connectors extending from the pressure sensor on the cartridge to a detachable electrical
coupling on the blood pump device.--